File Revision Date:
September 6, 2023

Data Set Description:

PI:	S. Simic, BOKU, AUT
Instrument:	UV Spectroradiometer (Bentham IDR-150)
Site:	Groß-Enzersdorf, Austria (48.20 °N, 16.56 °E, 156 m)

Measurement Quantities:
Cosine weighted spectral irradiance on a horizontal surface, 290 - 410 nm at 0.60 nm resolution (FWHM).
Scans are taken at intervals of 0.5 hours from sunrise to sunset, scan duration is approx. 7 min.

The data summaries on the NDSC database include the following:
1. Erythemal UV, ER (Wm-2) (McKinlay and Diffey 1987)
2. DNA-weighted UV, DNA (Wm-2) (Green et al. 1975)
3. Plant, PLA (Wm-2) (Green et al. 1974)
4. UVB (Wm-2)
5. UVA (Wm-2)

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Instruments Description:
entrance optics cosine response error is about 2% for SZA<=60 degrees

Wavelength shift is corrected with SHICrivm program, residual shift is lower than 0.02 nm in
Wavelength step size is 0.5 nm

Slit function:
Since 2023-08 FWHM is approx. 0.58 nm
Since 2011-04 FWHM is approx. 0.62 nm
Before 2010-09 FWHM is approx. 0.60 nm
Before 2010-09 FWHM is approx. 0.59 nm
Before 2008-05 FWHM is approx. 0.64 nm
Straylight rejection specification of 1e-3 at 2.5 FWHM is met
Straylight rejection specification of 1e-5 at 6.0 FWHM not met
Absolute calibration uncertainties are lower than 10%.

Algorithm Description:
Since 2021-07: Control and acquisition software is Bentham Instruments Ltd. BenWin+ 4, Modified for SAM-switching
Between 2021-07 and 2010-12: Control and acquisition software is Bentham Instruments Ltd. BenWin+ 3, modified for SAM-switching and TimeSync

Before 2010-12: Control and acquisition software is Bentham Instruments Ltd. ss9103.exe, latest revision, modified for SAM-switching

Dark current is automatically deduced from routine measurements and calibration measurements.
Reference irradiance interpolated (modified black-body, NIST SSBUV routine) between calibrated wavelengths.

Wavelength shift calculated with SHICrivm algorithm program (version 3.075), wavelength shift corrected.

Signal converted into irradiance with calibration constants from NIST and PTB calibrated radiation standards.

Instrument History:
1998-03 start of continuous operation
1998-12 until
1999-03 CUVRA campaign and preparation
2004-02 set-up and test of improved temperature stabilizing unit, enters regular service
2004-05 QUASUME intercomparison
2007-12 until
2008-07 field campaigns
2008-08 addition of second entrance optics for actinic flux, switched to via switchable SAM, data not part of NDACC
2010-07 mechanical defect of monochromator, service period, defective data excluded
2010-09 re-entrance into regular operation
2011-02 mechanical defect of monochromator, service period, defective data excluded
2011-05 re-entrance into regular operation
2014-07 NDACC intercomparison campaign in Hannover
2019-11 Mechanical defect of monochromator, removed from site and after a long delay period sent to Bentham Ltd. For repairs and upgrade from DM-150 to IDR-150 version.
2021-07 Bentham installed at site.
2021-09 Cooling unit of instrument broke – repair in 2022-01.
2022-01 re-entrance in regular operation
2022-2023 some mechanical and software issues – some gaps in data
2023-08 problems fixed. Re-entrance into regular operation